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THE Chemist

JANUARY, 1946 VOLUME XXIII, No. 1

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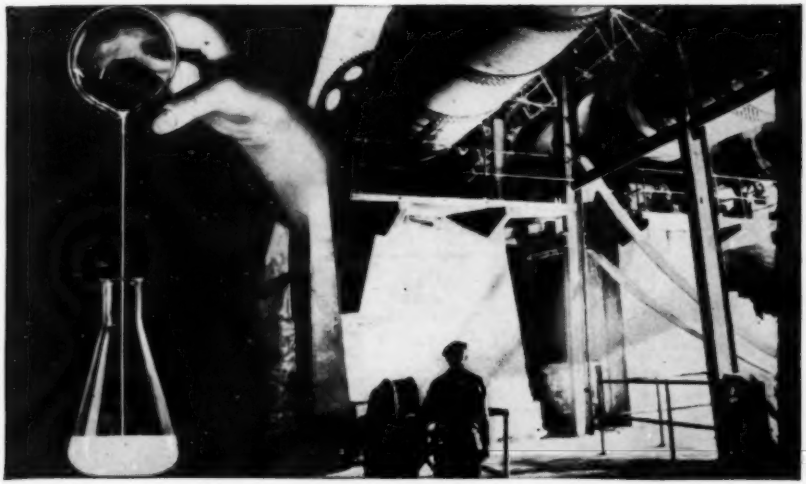

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The Chemist

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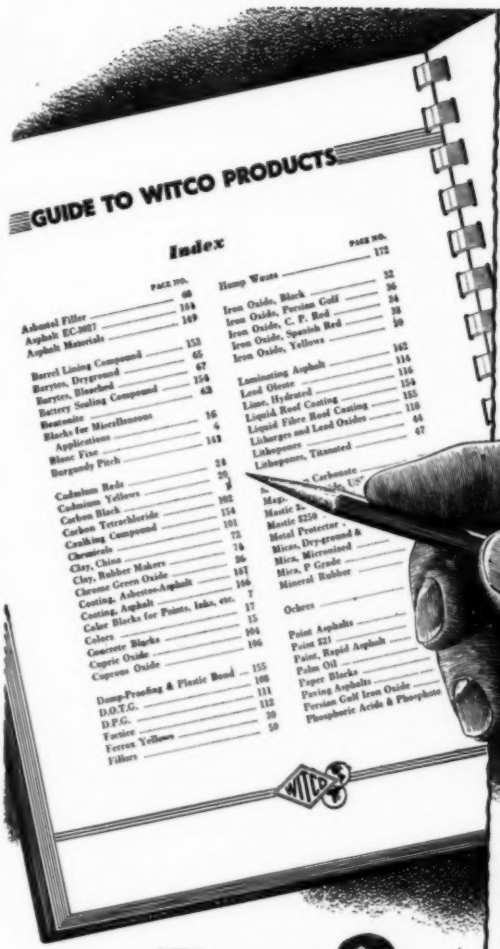
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The Chemist and One World

Marston Taylor Bogert, Hon. A.I.C.

IN prehistoric times man, like other wild animals of that day, faced a continuous struggle for survival. Before the lightning, terrible forest fires, sickness and dangers of all kinds on land, sea or in the air, he was helpless. Weaker physically than most of the wild beasts surrounding him, and impotent in the face of nature's overwhelming forces, he could not have survived except for the one endowment which differentiated him from all other animals, namely a highly developed reasoning brain, which taught him how to adapt himself to his environment, to wrest from nature more and more of her secrets, and to utilize this knowledge for his own purposes.

Day by day, year by year, century by century, he has ceaselessly carried on the battle which would make him the master. The lightning has been harnessed, fire serves him, cataracts and mighty rivers move as he dictates, the winds turn his windmills, his ships ply the seven seas, and his planes rule the air. He has discovered the ultimate particles of which our universe is composed and how to liberate vast stores of energy from some of them. He has also learned how to conquer many diseases and to increase the average span of human life.

And now that he finds himself largely master of his environment, or at least in sight of this goal of his ambitions, he is horrified to discover that after all he seems to have created a Frankenstein monster which may turn about and destroy him. The futility and irony of war is well exemplified in the recent global conflict

which we entered to secure lasting peace and security and now, after the devastation and destruction of so much of our world, the expenditure of billions of dollars and the sacrifice of millions of human lives, we find that we are in more imminent and deadly peril than ever before. In Norman Cousins' brilliant editorial and essay entitled "Modern Man is Obsolete," the author points out that the only security so far as atomic energy is concerned would seem to be adequate inspection and control, and he gives this laconic apothegm, which all should bear in mind: there can be no control without power; no power without law and no law without government.

Further, he so arrestingly says, "Time no longer works for peace. Time today works against peace. The longer we wait the more difficult it becomes to achieve world government. There is a desperate though quiet scramble in almost every nation of the world to duplicate the success of America, Canada and Great Britain in prying open the atom. This race is not only based on distrust, but generates distrust. The feeling grows everywhere that it must be every nation for itself. Are these the foundations of a common security? Are these the building blocks of lasting peace?" If we realize that time is running out, it is imperative that we do what we can, as quickly as we can, to help bring about some form of supreme government.

The world is growing smaller day by day and peoples are being brought into closer contact as time and distance are being steadily reduced or eliminated. Wars that used to require huge armies and navies may hereafter be waged by a few individuals or conceivably by one man only, sitting at an electrical control board and merely pushing the buttons necessary to start on their devastating journeys through the stratosphere huge rocket torpedoes, atomic bombs, or other deadly weapons of which we do not yet dream, capable of annihilating mankind and civilization before any effective defense can be set in motion.

As the late Elbert Hubbard used to remark, "In these days the man who says that a thing cannot be done is quite likely to be interrupted by some idiot's doing it."

The time and surprise factors, which play such an important role in all modern warfare, are of enormously greater consequence now.

For decades, scientists have predicted the arrival of such a situation, but their warnings fell upon deaf ears, and it has taken the appalling vision of the atomic bomb to bring home to them at last the truth of those prophecies, and what is still before us no one dares to predict.

Since atomic energy is not the only problem of this order of magnitude we are likely to be called up on to face

in the near future, we must be prepared for anything, or when a group of biochemists, biophysicists, physiologists and others together discover the secrets of life, old age and death, the end of the road may be in sight, and this little speck of the universe which we inhabit for so short a span may join other burnt out and uninhabited planets or stars in the vast spaces of the solar system, and I can assure you that I am not suffering from fright, hysteria, panic, or morbid emotionalism.

Scientists alone and unaided cannot solve these world-menacing problems. Because a man has become an internationally famous physicist or chemist does not necessarily make him a competent judge of the wisest national or international policies, any more than it would make him an expert musical critic or a skilled medical adviser. These problems are too terrifying in their portents to be decided by anybody except a group of the ablest men our country possesses in the various fields concerned, where each will be expected to discuss only that phase of the question in which he is an acknowledged expert. There is no place for amateurs or sciolists.

In such an assemblage, the scientists will occupy a prominent place. It is foolish to condemn science for the evil uses to which it is not infrequently put. It was Bishop Jeremy Taylor, over three-hundred years ago, who wrote, "Knowledge comes by eyes always open and working hands, and there is no knowledge which is not power." Power itself intrinsically is neither good nor bad, but may be used either benevolently or malevolently, and this fixes the responsibility where it properly belongs, namely on the individual who employs it. Questions like that of atomic energy do not concern just one group of people, but all nations and everybody, irrespective of race, religion or color.

If then these problems are world problems, they can be handled only by a world organization equipped with ample military power to enforce its decisions, and not merely by written agreements between so-called sovereign states, each one unwilling to release one jot or tittle of that sovereignty to achieve an effective supreme federal government for the world.

Where our civilization will be face to face with its final test will be when world government is achieved. It rests with mankind to make that world government either the greatest boon to civilization or the most terrible tyranny and dictatorship the world has ever seen. For supreme power, like any other kind of power, is capable of being used either for good or for evil, and the magnitude of the good or evil is directly commensurate with the greatness of the power.

It is generally agreed that the

U. N. O. is not an ideal way of meeting this crisis, but it is all we have at the moment, and there is no time to hold another San Francisco Conference. We must therefore regard it as a step in the right direction and do what we can to foster its healthy growth and development.

I am a believer in the plan of a "nuclear union," not only for theoretical reasons, but also because of my own practical experience with such a system. The International Union of Chemistry, prior to World War II, consisted of delegates from twenty-five different nations, mostly European. Naturally, with the devastation resulting from that conflict, its organization was disrupted and many of its leading figures killed. In the attempts by the United States to rebuild that organization and revive its manifold activities, we enlisted first the enthusiastic cooperation of our English colleagues, and together then approached the French chemists. The hands we held out have been warmly grasped by them and the three nations are now working together in harmony and arranging to resume friendly relations with other nations, with a common altruistic purpose and an earnest desire to aid in bringing about that better mutual understanding, respect, and appreciation upon which world federation must be built.

The suggestion, therefore, is that England and the United States first ascertain to what extent they are willing to cooperate and when this is definitely decided that they then explore the possibility of Russian participation. If Russia proves obdurate, a preliminary approach through France is the natural alternative. A full and unequivocal understanding between England and the United States is of vital immediate importance. Without it, the chances for world federation will be slim indeed, and every day's delay imposes additional handicaps.

If, however, they are successful in drafting a protocol for such cooperation which is enthusiastically supported by both, Russia can then be approached much more intelligently and with far better chances of a successful issue.

With the United States, England, and Russia presenting a united front for world government, other nations cannot long afford to remain outside, and such a nucleus will be the seed crystal to bring about the crystallization of the remaining slowly solidifying mass.

Further, it is suggested that the U. N. O., unless they have already done so, would do well, through appropriate committees, to establish active cooperation particularly with such organizations as the various International Science Unions and the International Council of Scientific Unions.

There is ample justification for believing that these international unions can be of considerable assistance to

the U. N. O. in many directions, and exert a stabilizing and strengthening influence upon that organization, provided that this can be achieved without such loss of autonomy as would essentially remove their control from the hands of the scientists and place it in those of the politicians.

The growth and development of the U. N. O. should be of direct benefit to the science unions, by increasing their opportunities for service, their influence and prestige, and the steadily growing importance of the part they would be called upon to play in international affairs.

As a concrete example, the International Union of Chemistry may be cited, since chemistry has both its fundamental pure science side and its multifarious important industrial applications, and because it is one of the strongest, most active, and most successful. Its routine work is conducted through a large number of international commissions and committees, composed of prominent chemists from various countries. Its publications appear in four or five languages.

At the outbreak of World War II, twenty-five nations were enrolled in its membership and over three-thousand people attended its last pre-war meeting, held in Rome in 1938. It is in close touch with chemists in all parts of the world. In spite of the war, it has been able to continue publication and the work of a number of its committees. It is now rapidly rebuilding its pre-war organization, renewing, and expanding its activities.

Its organization came about in the following way. When World War I was over, at the invitation of the Royal Society, an Interallied Conference on international science organizations convened in London on October 9, 1918, with eight countries, including the major Allies, represented. The problem of post-war contact with the central powers was dealt with in resolutions recommending that Allied scientists withdraw from existing international organizations and form new ones which the neutrals would be invited to join.

The suggestion of establishing a permanent interallied federation of chemists was made in London in November, 1918, at a reception given by the Society of Chemical Industry to Dr. Paul Kestner, president of the Societe de Chimie Industrielle of France. Following up this suggestion, the latter society called a conference in Paris in April, 1919, on the occasion of the visit of Henry Louis, president of the Society of Chemical Industry. Delegates were present from the United States, Belgium, Great Britain, France and Italy. The United States delegates were Bartow, Cottrell, McDowell, Kirkpatrick, Keyes, Mackall, Norris, Pennie, Riley, Wigglesworth, and Zanetti. After many meetings, it was

finally agreed to organize a confederation which should be at first interallied and later international.

Three months later, delegates of the same five countries gathered in London, the U. S. representatives being Cottrell, Parsons, and Washburn. The Union was formally and officially established, and the first Interallied Conference of Pure and Applied Chemistry arranged. A committee, under the chairmanship of Sir William Pope, submitted the text of the statutes. Dr. Charles Moureu, of France, was elected president, with one vice president from each of the four other nations, and with Dr. Jean Gerard as general secretary. The American vice president was Dr. Charles L. Parsons, secretary of the American Chemical Society. Our country thus played an important role in the organization and launching of the Union.

The outstanding feature of this new organization was that it was to be of a continuing character and not like the so-called chemical "congresses" which were held periodically as independent undertakings, lasted for only a few days, and then went out of existence entirely.

The next meeting of this Union is to be held in London in early 1947, with its Congress of Applied Chemistry under the presidency of Lord Leverhulme. Of the officers of the Union, the president and two of the eight vice presidents are now residents of the United States, one of them having been Minister of Public Education in the pre-war Polish Cabinet. Another of the vice presidents is Sir Robert Robinson of England. The Division of Chemistry and Chemical Technology of the National Research Council is the United States member of the Union, and prior to World War II, our government, through its State Department, paid its annual dues of $575 to Prince Ginori Conti of Italy, the distinguished chemical engineer, then president of the Finance Commission of the Union. It may be added that this Union is already planning to cooperate with the U. N. O. to the extent of declining to receive or consider any applications for admission to membership from nations which have not joined the latter and signed its charter.

When problems appear which concern more than a single science, joint committees or commissions can be formed composed of delegates from the scientific unions concerned and reporting to them. Any international commission on Atomic Energy would contain delegates from the Chemical, Physical, and such other unions as might be invited to participate. The atomic bomb itself is a brilliant illustration of what cooperative work can accomplish in scientific research.

The International Council of Scientific Unions, when properly re-

organized and administered, would function as the central clearing house for the individual unions, receiving from them brief periodical reports on their activities, and in return offering constructive suggestions as to future work. It might be possible then for this Council, perhaps annually, to distribute a summary of the more important achievements of the year, and thus give a bird's-eye view of the progress of science and the major lines along which it is advancing. The Council would also fit into that one of the higher brackets of the U. N. O. organization where it can be most useful.

In most countries, the national federation of chemical societies, or its equivalent, is the actual member of the Union, and selects the delegates to the various conferences and congresses. In this way, the Union reaches the individual chemist, and the latter in turn makes connection with the Union.

The International Unions thus are real shock troops, spearheading the advance and carrying forward triumphantly the banner of enlightened beneficent science against those common enemies of all mankind: Ignorance and darkness, superstition and intolerance, savagery, brutality and barbarism, poverty and famine, suffering and death.

When "the tumult and the shouting dies," and the international chemical gatherings break up, the delegates separate and return to their homes in different countries. After listening to a wealth of scientific communications and eloquent addresses, participating in interesting and delightful excursions, enjoying congenial and inspiring associations, renewing old friendships and making new ones, the real gold at the rainbow's end will have been found by most if not all of those who were present. For the mutual respect, esteem and affection, resulting from such reunions, is unquestionably the greatest contribution they make to the advancement of science and the progress of civilization.

New Jersey Chapter, A.I.C., Formed

A new Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, the New Jersey Chapter, was formed at an organizational meeting held in the Newark Athletic Club on October 23rd. Officers appointed to serve until the next annual meeting of the New Jersey Chapter are: Chairman, Horace E. Riley of the Bakelite Corporation; vice chairman, Paul Allen, Jr., of Stevens Institute of Technology; secretary, Harry Burrell of Heyden Chemical Corporation, Garfield, N. J., and treasurer, John B. Rust of Montclair Research Corporation, Montclair, N. J.

Lloyd Van Doren Now Secretary of the American Institute of Chemists

Our new secretary is Dr. Lloyd Van Doren, chemical consultant on patents, of Watson, Bristol, Johnson and Leavenworth, New York, N. Y.

Dr. Van Doren received the B.S. and M.S. degrees from Gettysburg College and the Ph.D. degree in chemistry at Johns Hopkins University. He was instructor of chemistry at Lowell Textile School, Lowell, Mass., assistant professor of chemistry at the University of Akron, and professor and head of the Department of Chemistry at Earlham College, Richmond, Indiana; consulting chemist and patent solicitor for the Chemical Foundation, Inc., and member of the Patent Division of Allied Chemical and Dye Corporation.

Dr. Van Doren is a charter member of THE AMERICAN INSTITUTE OF CHEMISTS, twice national vice president, chairman of the New York Chapter (1928), national councilor, member of the organizing committee for the recently formed New Jersey Chapter. He was recently elected secretary of The Chemists' Club of New York, N. Y.

Defer Science Students

The Association of Colleges and Universities of New York recently appealed to President Truman and to Congress to provide selective service deferment for science and engineering students. The resolution pointed out that during the next five years American industry will be severely crippled by a shortage of engineers, chemists, and physicists.

German Research

Some German industrial research is now permitted under strict military government supervision, according to the Industry Branch of the United States Forces in Europe Civil Affairs Section. No research of potential military value will be allowed. Research on paper, yeast, and woodpulp has been started at the Sellstoff-Fabrik Waldhof plant in Kelheim.

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—Bulletin 50—

INDUSTRIAL MACHINERY COMPANY
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The Commodore Retires

Sail forth, Oh INSTITUTE, sail forth!
From the troubled seas of youth and growth.
To others now I give the wheel
To guide thee through the mists and floes
Of modern times, to calmer climes,
And greater ports of destiny.
Sail on, Oh INSTITUTE, sail on!

The resignation of Mr. Howard S. Neiman as Secretary of THE AMERICAN INSTITUTE OF CHEMISTS was finally accepted with deep regret at the November meeting of the National Council. A charter member of the INSTITUTE, Mr. Neiman has been the guiding hand behind it throughout its life. He has been its Secretary since 1926, has served on innumerable committees, has been its legal adviser, has "trained" each President, educated its committee chairmen in their duties and has been a big brother to many a struggling chemist.

Mr. Neiman feels the time has come for him to forego some of the extra-curricula activities which have demanded so much of his time these many years.

However, he has agreed to serve as Secretary Emeritus, so the INSTITUTE will still have the benefit of his advice and mature judgment.

Mr. Neiman, THE INSTITUTE salutes you as its Commodore who has charted our troubled waters and guided us past the shoals and rocks of our earlier years of growth. Our thanks to you for our safekeeping. May the future grant you only calmer seas and may it bring you the satisfaction and recognition due one who has done a job so well. May the future of THE AMERICAN INSTITUTE OF CHEMISTS serve as a token of your unceasing effort in its behalf.

German Chemical Secrets

Large areas of German scientific and technological knowledge still remain unexplored, Walter J. Murphy, F.A.I.C., American Chemical Society editor, and member of a technological study group recently returned from Germany, said in an address before the meeting of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS on November 29, 1945.

We should continue the present policy of sending highly skilled specialists in large numbers into Germany to supplement reports made by earlier investigators, study the plants and products, and prepare complete, detailed reports on every phase of the know-how involved, said Mr. Murphy. If the Nazis are not compelled to disclose the technical treasure still concealed, and if the documentary data already obtained by the Allies are not immediately made available, the full fruit of victory will be lost to American industry.

This material should be translated, classified, catalogued, cross indexed, microfilmed where necessary, digested and given wide distribution to American industry. The services of hundreds of highly skilled technical library workers will be required. Unless some such detailed plan is adopted immediately and properly executed, we will lose a large part of the German scientific developments of the past ten years. American industry can use this information to develop new products, create new industries, and new jobs, but the small emergency funds allotted for the project are insufficient. About $2,000,000 will be required adequately to carry on this largest publishing undertaking of all time.

Mr. Murphy urged all chemists to express their opinions on this matter to the Congressional Appropriations Committee and to Mr. John C. Green, Secretary, Publications Board, Department of Commerce, Washington 25, D. C.

Russell Awarded A.I.C. Medal for 1946

Robert Price Russell, president of the Standard Oil Development Company, will be presented with the 1946 Gold Medal of THE AMERICAN INSTITUTE OF CHEMISTS, at its Annual Meeting to be held in May. The award was made in recognition of Mr. Russell's work as a chemist, chemical engineer, and administrator; and for his contributions to the petroleum industry and to the war effort. Details of the award will appear in the February CHEMIST.

Government-Owned Patents

AMONG the flood of Congressional bills dealing with war time research, proposed national research foundations, control of atomic energy and all the other government subsidized activities, there are several which include specific provisions for the disposition of patents which may issue as a result of the research involved.

All bills affecting research involve patent rights of the inventor, of the government, and of the public. Some of the problems involved were discussed in the "Agenda of the President's Committee on Patents" in the November, 1945, issue of THE CHEMIST.

It is the policy of THE CHEMIST to present, whenever possible, varying points of view on topics of professional interest to its readers. The following NAM presentation of the reasons for its proposed bill is a forceful statement of its position.

Report of the NAM Subcommittee on Government-Owned Patents

Introductory Statement of Principle

This report and accompanying recommendations are based upon the firm belief that what all the public has paid for all the public should be free to enjoy. What the public has paid for once it should not be required to pay for again. There is full agreement with the statement of the Kilgore Committee that

"The Government has a responsibility to the American taxpayer and to American business to make sure that the results of research financed by it are made freely available to the maximum extent possible as a working basis for the development of new products, new industries and new jobs."

—*"The Government's Wartime Research and Development,* 1940-1944," Report from the Subcommittee on War Mobilization to the Committee on Military Affairs, United States Senate, Part II; July, 1945: p. 18.

Government Patent Holdings Are of Great Scope and Potential Value

The National Patent Planning Commission reported in January, 1945, as follows:

"While the exact number of patents owned by the Government

will not be known until the completion of the register of Government interests in patents, it appears that the Government possesses, prinicpally as the result of inventions made by employees, approximately five hundred unexpired patents and that nearly the same number have been expressly dedicated to the public. In addition, there are approximately three thousand unexpired patents of Government employees granted under the Act of 1883 and under which the Government has a royalty-free license."

More important than the patents already issued are government-owned applications now pending. Your Committee is informed that under the impetus of the war research program, such applications number many thousands. These relate to many fields; including chemistry, electronics, communication, food preservation, fuels, gas turbine engines, coatings, textiles, and all manner of equipment and methods applicable to peace time use. These are in addition to inventions of an exclusively military nature. By its very nature war time research is intensely practical.

The Problem Is Important

The government's extensive patent holdings, covering many inventions of most practical nature in virtually all fields of endeavor, constitute a potent force capable of working the greatest benefit or detriment to our national economy. The policy in respect of these holdings should be such as to benefit as greatly as possible government, industry, labor and the public. These inventions should be used to help restore and develop a flourishing postwar economy.

Great as is the immediate practical importance of the government's current patent holdings, those are overshadowed by the questions of policy which they pose. For so powerful a block of patents under governmental control can be misused to work revolutionary departures in our economic system rather than to strengthen and promote our traditional economic system of free enterprise of free men. A sound policy must be established in respect of present holdings if the ground work is not to be laid for a continuing policy of promoting direct economic competition between government and private enterprise and of putting government into business.

The Problem Is Urgent

Prompt and effective use of government patents should be made. This would prove of tremendous value in meeting the problems of reconversion and an expanding postwar economy. Moreover, the principles of policy in regard to these should be made clear, so that planning of both the government and of private industry may go forward promptly and upon a firm and known basis.

The need for prompt formulation

of a policy is pointed out by the Kilgore Committee reports.

> "There has been no consistent Government policy as to the ownership of the patents which may be taken out on Government-financed inventions and discoveries."

This Committee further reports that it, "in collaboration with the Department of Justice . . . will shortly issue a report on this subject."

The Bush report says that early action on its proposals "is imperative" and that legislation to that end "is necessary." Some legislation purporting to deal with government-owned patents has already been introduced to the Congress.

Many Basic Legal Questions Concerning Government Patents Are Shrouded in Uncertainty

There is grave question whether the government is entitled, by law, to hold title to patents. No such power is delegated to the Federal government by the Constitution, and Article X of the Bill of Rights of that Constitution specifically provides that "The powers not delegated to the United States by the Constitution . . . are reserved to the States respectively, or to the people." The omission of this power from the Constitution can hardly be ascribed to an oversight. As the National Patent Planning Commission has said, "The chief value and importance of a patent to its owner flow from the right to exclude bestowed by the grant . . . but the government not operating a business has no need for this kind of protection."

There is grave question whether the Federal government has the power to grant licenses under any patents, title to which might be vested in it. While various decisions of the Attorneys-General of the United States have so held, this is hardly conclusive. Opinions of the Attorneys-General "have been disregarded by the courts about as often as followed. In the only reported instance . . . on patent matters . . . his opinion was not followed by the court" (Government Ownership of Patents by Frank J. Wille, Fordham Law Rev., Vol. XII, p. 124 (1943). The entire line of opinions of the Attorneys-General holding that the Federal government may grant licenses stems from an opinion of the then Attorney-General Stone. But this entire line of authority seems undermined by the dissenting opinions of the same Mr. Justice Stone and Justices Cardozo and Hughes in *United States v. Dubilier,* 289 U. S. 178 (1933).

Although the government has granted numerous non-exclusive licenses under patents nominally vested in it, the government has never enforced or attempted to embrace the right to exclude, which is the whole essence of a patent.

There has been no adjudication as

to the right of the government to acquire title to patents, to grant licenses thereunder, or to enforce the same.

Contrary to the common notion that the government possesses such rights, there is a valid reason to believe that the vesting of title to a patent in the Federal government works the cancellation of all patent rights and renders the patent simply a publication of the subject matter therein set out, so that no question of license or enforceability may properly arise with respect thereto. If this theory is correct then any member of the public may freely use the subject matter of a so-called Government-owned patent.

Notwithstanding these substantial legal doubts, government ownership of patents and the granting of licenses thereunder, both on a considerable scale, are accomplished facts. Therefore, it may be assumed that a simple but effective method of solving the problems arising in this regard may be based upon acceptance of this *de facto* situation, but requiring an adequate definition of the rights of all the public in and to government-owned patents.

The Government Should Continue to Hold and Obtain Patents Covering Inventions Financed by the Government, i.e., by the Public

This view is consistent with the broad statement of general principle first above set out. It is justified by the reasons set out in the Department of Agriculture's statement of patent policy contained in its *Patent Manual for Employees*. The relevant portions of this Manual are set out as APPENDIX A hereto. These seem wholly acceptable in basic principle, except as to two important points, i.e., with regard to the exercise of patent control through licenses "to safeguard the public," and with regard to the Department's recommendation of exclusive licenses under government patents. These points are considered below.

It will thus appear that the purpose of permitting the government to acquire patents is to protect the public in its right to use what it has already paid for, and to protect the tax payer against being required to pay twice for the same invention.

Government Patents Should Be Dedicated to the Free Use of the Public Who Paid for Them

Protection of the public should be the sole function of government patents. Accordingly, all government inventions and patents issued thereon should be dedicated to the free use of the public, who paid for them, limited only by requirements of military security.

Government Patenting and Publication Should Mutually Complement Each Other

Publication of scientific information developed at public expense should

be promoted to aid in its dissemination. But in the case of such information susceptible of patenting, publication should be a secondary rather than a primary means of assuring the public of its right to use such information. Thus patentable subject matter originating with or financed by the government should be published in scientific and technical journals, government publications, and the like, as and when this may seem desirable for its dissemination, but protection, by patenting, of the public interest in such subject matter should be regarded as of primary concern. Any publication of such material should be in accordance with principles consistent with this view.

Government Patents Should Not Be Licensed for Fees, or on Onerous Conditions

At least one important government department has already promulgated regulations whereby government patents shall be licensed for "a reasonable royalty or other consideration," thus requiring the public to pay twice for the same invention, which is indefensible.

Such regulations further provide that licensees

> "May be required to submit annual or more frequent technical or statistical reports concerning 'know how' obtained through the exercise of the license or sublicense, the number or quantity of articles produced under the license or sublicense, and other related subjects."
>
> —Regulations prescribed by the Secretary of the Interior for the Licensing of Patents and Inventions, Issued and Effective August 11, 1945.

No royalties, "other consideration," or reporting requirements should be exacted from or imposed upon the public in respect of inventions which the public has paid for and which constitute its own property.

Government Patents Should Never Be Exclusively Licensed or Sold

This would place citizens of the United States at a disadvantage as compared with the peoples of foreign countries. For while persons abroad, in the absence of corresponding foreign patents, could freely appropriate the subject matter of issued United States patents owned by the government, citizens of this country would be prevented from practicing such inventions, and would be discriminated against.

Exclusive licensing or sale of government-owned patents would lack legal sanction; for this would be tantamount to the grant of patents by the government, to persons not inventors, for a consideration other than that provided for in the Constitution and patent statutes.

It would place Government squarely in the business of developing and licensing inventions for com-

mercial utilization, thus directly conflicting with free competitive enterprise of its citizens.

It would tend to promote industrial research by government, and to inhibit industrial research by private enterprise, and initiate a vicious spiral tending to result in complete replacement of the latter by the former and in the establishment of a totalitarian system. Apart from the radical departure in economic practice which this would involve, there is no valid reason to believe that the development of such a policy would implement the constitutional purpose "to promote the progress of science and useful arts." The record of practical advance by private enterprise under the stimulus of the patent system is phenomenal. It is in striking contrast to the relatively poor record of government laboratories in producing useful and practical things despite the millions of dollars spent in government research prior to World War II.

It would foster suit by the government against its citizens for patent infringement, for the collection of royalties and for the breach of license agreement provisions. Empowering exclusive licensees to bring suit in their own names would not discharge the government's obligations in respect of pursuing infringers, especially in the case of exclusive licenses limited to particular industrial fields or geographical territories.

It would violate the cardinal and controlling principle that all the public should be entitled to use that which it has paid for. All members of the public other than the exclusive licensee or assignee, would be either barred from using an invention they helped pay for or would be required to make a second payment in order to use the same.

It would be an instrument of incalculable power to achieve political control of industry. The way would be open for political favorites to gain special advantages at the expense of those not in favor.

It would involve economic and political retrogression of the worst kind, harking back to the abuses of royal privilege which led to the enactment of the Statute of Monopolies in 1623.

It would breed graft, corruption, and political malpractice in regard to matters of vital importance to the economic life and growth of the nation, and stultify technical progress.

It would subject the public to uncertainty and to needless and unjustifiable expense, not only in paying tribute to exclusive licensees and assignees, but also in maintaining the bureaucratic regime which would be required to administrate any such program.

It would tend to retard and delay further development of fields cov-

ered by the patents in question; for it would place the future development of such fields in the hands of a selected few instead of throwing the development of such fields open to many, with consequent further development on a broad base. The arguments for exclusive licensing as a means to promote commercialization are sound, but only within limits. Such arguments apply differently to government-owned inventions than to those owned privately. As to publicly-owned broad or basic inventions, it is particularly fitting that the field be thrown open generally to the public. Here the arguments for exclusive licensing fail because the opportunity exists for the development and patenting of improvements giving commercial and useful form to the basic inventions. Exclusive licensing and sale of mere improvement patents owned by the government are not supported by the argument that exclusive rights are necessary to protect risk capital invested in developing basic inventions; in such situations the argument simply does not apply.

If any benefits to the public may be expected to accrue from exclusive licensing or sale of government-owned patents, such benefits would not begin to compensate for the adverse over-all effect upon scientific progress and the national economy of any policy contemplating the exclusive licensing and sale of government-owned patents.

Patenting Is Not Necessary to Control Government Inventions

It has been argued that the government requires the right to grant and revoke licenses in particular cases in order to protect the interest of the public. This thought is exemplified by reference to a situation involving the purity of a new drug or food product. Any controls of this nature which may be deemed necessary in the public interest may be amply afforded by suitable laws or regulations exercising the Police Power of the government. No control of this character through the patent laws is desirable or necessary.

The Patenting and Dedication to the Public of Government Inventions Is Wholly Compatible with Secrecy Necessary to Military Security

Government inventions which should be kept secret may be embodied in patent applications which are, in turn, the subject of secrecy orders. Throughout World War II many thousands of inventions of great military value have been treated in this way. Secrecy thus imposed may be extended as long as circumstances require. The issuance of a patent covering such inventions would not be necessary to restrain the unauthorized use of such inventions by any private citizen, as such restraint might lawfully and effectively be imposed by

the government under its Police Powers.

Legislation Is Required: A Bill Is Proposed

There is at present no legislation which generally dedicates to the free use of the public all government inventions and patents. In the absence of express Congressional authority, the Federal government does not appear to have the power to dispose of Federal property on royalty-free terms, except upon the understanding that such property may at any time be recaptured by the government. Legislation providing for the free and final dedication to public use of government-owned patents is, therefore, required, and should be enacted promptly. Draft of a legislative proposal along these lines is enclosed as APPENDIX B. Your Committee recommends that early enactment of such a measure be supported.

These Proposals Are Deemed Consistent with Sound Principle and the Best of Current Thought on the Subject

It is the considered view of most of those who have given serious consideration to the subject that the public interest is best served in respect of government inventions by throwing these generally open to public use. The prompt, free, public and general dissemination of scientific and industrial information is practically universally recommended. Such is the objective of the proposals herein advanced.

These proposals are not inconsistent with legislation already introduced to implement the recommendations contained in the report of Dr. Vannevar Bush to the President, transmitted under date of July 5, 1945.

By Executive Order, on August 27, 1945, President Truman took steps to provide for the release to American industry of scientific and industrial information seized from the enemy during the war. He asserted that this information was to be made "of maximum benefit to the public" and urged its "prompt, public, free and general dissemination." The case for similar treatment of such information which our own citizens have paid for is manifestly even stronger.

It should be noted that the proposals herein advanced are such that the objectives pursued would not be prejudiced in the event that it should be hereafter determined that government-owned patents have no valid basis in law.

Respectfully submitted,

Merwin F. Ashley

Anthony William Dellar

Robert Gottschalk, *Chairman*

APPENDIX A

Patent Policy of the Department

The United States Department of Agriculture includes one of the larg-

est research organizations in the world, and obtaining patents is considered by the Department to be an important supplement to its research activities. It is impractical to deal on a modern basis with such large-scale research without an adequate supporting patent program.

To carry out such a program, it is important that those engaged in research have a clear understanding of the value of obtaining patents on inventions made in the Department. Unless the benefits of securing patents are appreciated and a carefully planned progress is carried out, many of the fruits of research in the Department may be forfeited.

It is often asked, "Why should the Department bother to obtain patents at all? Would it not be sufficient simply to disclose its inventions in other forms of publication?" In order to understand the answers to these questions, it must be borne in mind that the object of research in the Department is to benefit the public. An invention made as a result of research in the Department belongs to the public, which paid for it through taxation. Obviously, the public should not be required to pay twice for the same invention.

The possibility of double payment would be involved if an invention made in the Department were not patented by the Department. The field would be left open for someone else to obtain a patent on the same invention and to charge royalties under it. This would be true even if the Department disclosed the invention in a publication, since publication in this way is not a bar to the granting of a patent if the application is filed in the Patent Office within a year of the publication date and the applicant can show that he made the invention before the date of publication, even though after the date of invention by the author. This would not ordinarily be a matter of dishonesty. In thousands of cases two or more independent workers have made the same invention at about the same time, especially in rapidly advancing arts.

It is sometimes necessary for special proceedings to be instituted to settle questions arising under such circumstances. These proceedings are referred to as interferences, and they ordinarily involve inventors claiming substantially the same patentable subject matter. The word "claiming" is used in the legal sense to mean that the invention must be claimed in a patent or an application for patents. Nothing else counts. Disclosure in a publication is not sufficient, because the Commissioner of Patents cannot declare an interference on the basis of a disclosure other than that set forth in the claims of a patent or an application for patent . Consequently, unless the Department files applications for patents on its inventions, it has no opportunity to con-

test the attempt of someone else to obtain or maintain a patent on the same invention.

In addition, patents permit certain departmental control over the exploitation of inventions covered thereby for the protection of the public. The method of accomplishing this control is discussed in section 35.

Patents are therefore obtained by the Department to defend the results of its research and thus protect the public interest.

35. Factors To Be Considered in Recommending The Type of Public-Service Patent To Be Obtained.

Determination as to whether a patent shall be of the assigned type or the dedicated is made administratively by the Secretary on recommendation of the bureau in which the invention originated. In making the recommendation, consideration should be given to the use that is likely to be made of the invention covered by the patent. If the invention is of such character that some measure of control is necessary to safeguard the public, the patent is ordinarily assigned to the Secretary. For example, if the invention comprises a medicinal compound or an insecticide in which the matter of purity may be important, it is deemed advisable to assign the patent to the Secretary, who may issue to manufacturers licenses containing provisions with respect to purity.

On the other hand, where such administrative control is not necessary, there is no need to assign the patent to the Secretary, and dedication to the public is sufficient. Such a dedication permits anyone to use the invention covered by the patent, just as if the patent had expired.

It is particularly desirable to dedicate patents to the public if the invention requires no commercial development and is likely to be used by a large number of persons, such as farmers and householders. As examples, a new method of canning tomatoes at home or a simple device that could be improvised on the farm to prevent sagging of field gates would probably not require commercial development and would be likely to be used by a large number of persons. In such cases, it would be burdensome, not only to those wishing to use the invention but also to the Department, to require the issuance of a license to each user.

At present, patents covering inventions which may require commercial exploitation are being assigned to the Secretary in the hope that Congress will enact legislation for the issuance of exclusive licenses. Under the present law, any license issued by the Secretary, under patents assigned to him, must be revocable, nonassignable, and nonexclusive.

—PATENT MANUAL For Employees of the United States Department of Agriculture, 1944 (Miscellaneous Publication No. 551), Pages 1 and 16.

APPENDIX B

A BILL

To promote the progress of science and the useful arts and to secure the maximum utilization for the public benefit of inventions and patents owned by the United States of America.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, in order to secure the full development and application of scientific and technical information and to provide for the prompt, public, free and general dissemination of scientific, technical and industrial information, inventions and patents owned by the United States of America:

SEC. 1. All patents, inventions and scientific, technical and industrial information, title to which is now or may hereafter be vested, legally or equitably, in the United States of America, other than as a trustee or fiduciary, are hereby dedicated to the free use of the people of the United States of America and no cost, fee or license shall be exacted or required in respect thereof.

SEC. 2 .(a) The expression "United States of America" as used herein is defined to include the United States of America, its departments, bureaus, agencies, officers, instrumentalities, or any of them.

(b) The expression "patents, investments and scientific, technical and industrial information," as used herein, is defined to include all patents and information concerning scientific, industrial, and technological processes, inventions, methods, machines, devices, products, compositions of matter, manufactures, improvements and advances heretofore or hereinafter produced, obtained or acquired by the United States of America, or which it may now or hereafter be entitled to obtain or acquire.

SEC. 3. All subsistent licenses under patents, inventions, and scientific, technical and industrial information title to which is held by the United States of America, other than as a trustee or fiduciary, shall be and hereby are cancelled.

SEC. 4. The provisions of this act shall become effective upon the first day of the second month next succeeding its enactment.

Deanesley with Universal Oil

R. M. Deanesley, recently with M. W. Kellogg Company and Kellex Corporation, has joined the research staff of Universal Oil Products Company, Chicago, Ill. He will be in charge of a new department which is being established in the company's Riverside laboratories. While with the Kellex Corporation, he worked in connection with the separation of U-235 by gaseous diffusion.

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November Meeting

The 223rd meeting of the National Council of The American Institute of Chemists was held on November 23, 1945, at The Chemists' Club, New York, N. Y., with President Gustav Egloff presiding.

The minutes of the previous meeting and the reports of the Secretary and Treasurer were accepted.

A petition, signed by nineteen members, was presented, requesting the granting of a charter to a new chapter of the Institute, to be known as the New Jersey Chapter. This request was approved, and President Egloff welcomed the New Jersey Chapter into the Institute.

port of the Committee on Contracts for comment by interested members and to report on these to the Council.

The printing of 10,000 copies of the Report of the Committee on Employer-Employee Relations was authorized.

The resignation of Mr. Howard S. Neiman, as secretary, was accepted with deep regret. Dr. Lloyd Van Doren was appointed to serve in his stead for the remainder of the fiscal year.

The report of the Committee on Federal Civil Service Classification was referred to the next meeting of the Council.

Dr. Hessel suggested that a questionnaire on "Legislation Establishing a National Research Foundation" be sent to all Institute members.

Upon motion made and seconded, the following new members were elected:

Fellows

Robert D. Bargman,
Lieutenant (jg), U. S. Navy, Office of Inspector of Naval Material, Houston, Texas.

Edgar Clay Britton,
Director of Organic Research Laboratory, Dow Chemical Company, Midland, Michigan.

John Joseph Denton,
Pharmaceutical Research Chemist, Calco Chemical Division of American Cyanamid Company, Bound Brook, N. J.

Paul Franklin Dreisbach,
Organic Chemist, Calco Chemical Division of American Cyanamid Company, Bound Brook, N. J.

Clarence Epstean,
President, Walker Engraving Corporation, 141 E. 25th Street, New York 10, N. Y.

Richard Bernard Greene,
Research Chemist, Barrett Division, Allied Chemical and Dye Corporation, Philadephia 37, Penna.

George Philip Hager, Jr.,
Assistant Professor of Chemistry, University of Maryland, 32 So. Greene Street, Baltimore, Md.

William Allen Hensley,
Chemical Director, Process Engineering Corporation, 1730 West Carroll Street, Chicago, Illinois.

Francis Richard Holden,
Senior Fellow, Mellon Institute, Pittsburgh, Penna.

Hugh Alexander Hamilton,
Supervisor of Chemical Research, Cities Service Refining Corporation, Butadiene Plant, Lake Charles, Louisiana.

Erwin Kuh,
Research Supervisor, Calco Chemical Division of American Cyanamid Corporation, Bound Brook, N. J.

Louis F. Koberlein,
Senior Research Chemist (Group Leader), Interchemical Corporation, Research Laboratories, 432 West 45th Street, New York 19, N. Y.

Louis Koenig,
Research Chemist, Lithaloys Corporation, 444 Madison Avenue, New York 22, N. Y.

Louis G. MacDowell,
Research Director, Florida Citrus Commission, Lakeland, Florida.

Morris W. Mead,
Laboratory Director, National Grain Yeast Corporation, 810 Mill Street, Belleville, N. J.

George D. Martin,
Research Chemist (*Group Leader*), Publicker Commercial Alcohol Company, 1429 Walnut Street, Philadelphia, Penna.

Charles U. Pitman,
Director of Research, Middlesex Manufacturing Company, Lincoln Boulevard, Middlesex, New Jersey.

Leonard Smidth,
Technical Director, Sylvan Plastics, Inc., 122 E. 42nd Street, N. Y. 17, N. Y.

Philip E. Tobias,
Project Leader, Publicker Commercial Alcohol Company, 1429 Walnut Street, Philadelphia 2, Penna.

Carl John Wessel,
Control Division, General Chemical Department Head, Gelatin Products Corporation, 9425 Grinnell Avenue, Detroit 13, Michigan.

Members

Lloyd Richard Brower, Jr.,
Chief Chemist, Jamestown Paint and Varnish Company, Jamestown, Penna.

Thomas Dixon Dudderar,
Senior Chemist, Picatinny Arsenal, Dover, New Jersey.

Norman F. Johnston,
Chemist, R. T. Vanderbilt Company, Inc., 230 Park Avenue, N. Y. 17, N. Y.

William H. Kanninen,
Chemist, Oakite Products Company, 22 Thames Street, New York 6, N. Y.

Erik Gustaf Linden,
Associate Chemical Engineer, U. S. Army Signal Corps Engineering Laboratories, Fort Monmouth, Red Bank, N. J.

William B. Stevens,
Process Products Engineer, Socony-Vacuum Oil Company, 230 Park Avenue, N. Y. 17, N. Y.

Elmer W. Trolander,
Research Chemist, Pyroxylin Products, Inc., 4851 So. St. Louis Avenue, Chicago 32, Illinois.

Donald Lloyd White,
Assistant Chief Chemist, Washington Gas Light Company, 26th & G Streets, N. W., Washington, D. C.

Raised from Member to Fellow

Abby Ware Nies,
Research Chemist, Calco Chemical Division of American Cyanamid Company, Bound Brook, N. J.

Stanley H. Richardson,
Chemist, Bakelite Corporation, Bloomfield, N. J.

Raised from Associate to Member

George E. Danald,
Major, C. W. S., 0407628, Hq. VII ASAC, APO 611, C/o Postmaster, San Francisco, California.

Howard C. Klein,
Chemist, Research Department, Nopco Chemical Company, First and Essex Streets, Harrison, N. J.

John J. O'Connell, III,
Captain, Naval Air Corps., 262 East Main Street, Peru, Indiana.

CHAPTERS

Los Angeles

Chairman, Henry W. Greenhood *Vice Chairman,* Clifford R. Stewart
Secretary, Joseph B. Ficklen III
808 North Spring Street, Suite 810
Los Angeles 12, Calif.
Treasurer, Paul C. Rich
Council Representative, Albert Salathe

The 1945-46 Los Angeles Chapter Council held its first meeting of the season on the evening of November first.

Following is the general basic program as outlined at this meeting:

(1) To create a strong internal organization, making full use of the available man power of the Chapter.

(2) To obtain meeting programs of general and varied appeal to both ourselves and our guests.

(3) To make special effort to increase the membership.

(4) To work toward greater cooperation with other organized groups of chemists.

The officers shown above were elected for the year 1945-1946, and in addition the following local councilors were elected: Henry D. Boddington, Edwin B. Henderson, Charles W. Henning, Glenn Joseph, John I. Nairne, L. F. Pierce, and Roger Truesdail.

Miami Valley

Chairman, Edgar W. Fasig
1st *Vice-chairman,* George F. Garnatz 2nd *Vice-chairman,* John Traquair
Secretary-treasurer, John R. Fisher, Jr.
Chemical Developments Corporation
1771 Springfield Street, Dayton 3, Ohio
Council Representative, E. L. Luaces

An extremely interesting and enlightening discussion was heard by members and guests at the Chapter meeting held on December 13, 1945.

Mr. M. H. Arveson, chairman of the Chicago Section of the American Chemical Society and senior technologist with Standard Oil of Indiana, spoke on the subject of "Research, Industry and Government." At the end of his discussion, members and guests participated in a lively exchange of views and opinions.

Mr. Arveson's discussion centered around the Vannevar Bush Report and the Magnuson and Kilgore Bills.

It was pointed out that there are two principal differences between the two Bills: The one relating to the type of Board which will administer Federal funds for scientific research; the other relating to the handling of such patents as may be obtained as the result of research conducted with Federal funds.

The Magnuson (Bush) Bill backers feel that the Foundation should leave the field of applied technology in private hands, while representatives of some government bureaus argue that the National Research Foundation should aid little business by developing patentable items and turning them over, license free, to all business.

The letter written to the President of the United States by the Committee in Support of the Bush Report was read.

At the end of the meeting an informal vote was taken to determine the number of members in favor of the Bush Plan. The vote was unanimously in favor of the plan as written. This vote included not only members of the A.I.C. but every one of the guests present. A motion was then made and seconded that the Miami Valley Chapter of A.I.C. go on record as supporting the purposes and intent of the Bush Plan. This was carried unanimously.

New York

Chairman, A. Lloyd Taylor *Vice-chairman,* Lloyd W. Davis

Secretary-treasurer, John J. Miskel
National Oil Products Company
Harrison, New Jersey

Council Representative, Elmore H. Northey

News Reporter to THE CHEMIST, Arthur De Castro

On November 29th, the New York Chapter was addressed by Col. Marston T. Bogert, F.A.I.C., who spoke on the "International Union of Chemistry and One World" as his response to the presentation of the Certificate of Honorary Membership of the INSTITUTE. (See pages 9-15.)

The meeting was also addressed by Walter J. Murphy, F.A.I.C., who spoke on "German Chemical Secrets —Will American Chemists Get Them?" (See report on page 18.)

The next meeting will be held on Thursday, January 24th, at which both Dr. W. E. Kuhn, F.A.I.C., and Dr. Earl S. Whitford will speak.

Dr. Kuhn, manager of the Technical Research Division of The Texas Company, will discuss "Modern Trends in Lubrication." Recent developments in specialized lubrication, particularly the chemical structure of

additives in relation to the physical and chemical properties of lubricants including corrosion, oxidation, dispersion, detergency, special alloys, and operation at extreme temperature will be considered.

Dr. Whitford, director of sales of the Oldbury Electro-Chemical Company, will discuss "Phosphorous and Some of its Industrially Significant Compounds," and also their application to plastics, rubber, biochemistry, organic syntheses, and petroleum.

Washington

President, Louis N. Markwood *Vice-president,* William L. Hill

Secretary-treasurer, Royal E. Rostenbach

319 North Quincy Street, Apt. 1

Arlington, Virginia

Council Representative, Walter J. Murphy

Reporter to THE CHEMIST, H. I. Feinstein

On December 6, 1945, the Chapter met at the Wardman Park Hotel, Washington, D. C. A dinner in the main dining room preceded the meeting. The following committee appointments were announced:

Membership, T. H. Tremearne, chairman; and L. F. Rader.

Civil Service, F. O. Lundstrom, Chairman; Elizabeth Hewston, William L. Hill, L. F. Rader, and L. W. Markwood.

Patents, John W. McBurney, member.

National Legislation, Eduard Farber, chairman.

Mr. Tremearne and Mr. Lundstrom presented reports of their committees. Certain fundamental recommendations were made. Mr. Lundstrom, who is also chairman of the National Committee to Consider Proposals Concerning Federal Classification and Promotion, told of the proposals presented by this committee to the National Council.

Dr. Eduard Farber presented "National Legislation Affecting Chemists" now pending in Congress. His remarks were based upon his interpretation, published statements, Senate Document No. 92, and published proceedings of the Senate Subcommittee on War Mobilization of which Senator Kilgore is chairman. Emphasis was placed on the Kilgore Bill 5. 1927 and the Magnuson Bill 5. 1285. Mr. Herbert Schimmel, chief, Investigations and Hearings of the above Subcommittee, presented additional information on the hearings and the work under way of a combined Magnuson-Kilgore Bill. A discussion followed the presentations.

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Fastex, developed by Western Electric Company, is a high-speed camera which will take 8,000 pictures per second.

The Alabama Legislature appropriated $100,000 for research at the University of Alabama.

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Meeting Dates

Jan. (date to be announced). Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Joint meeting with American Chemical Society and Society of Professional Engineers. Speaker, Walter Graff. "Engineers' Law".

Feb. 5. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Commander Aubry H. Hamilton, USN, "Control of Tropical Diseases."

Feb. 8. Chicago Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Huyler's Restaurant, 310 South Michigan Avenue, Chicago. Dinner 6 p.m. followed by meeting.

Mar. (date to be announced). Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Meeting in Cincinnati. Chapter Award. Speaker, Gustav Egloff.

Mar. 5. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Dr. Gerald P. Wendt, science editor, *Life* and *Time* magazines, "World Wide Chemistry".

Mar. 29. Chicago Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Huyler's Restaurant, 310 South Michigan Avenue, Chicago. Dinner 6 p.m. followed by meeting.

Apr. (date to be announced). Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Meeting in Columbus. Speaker, G. F. Deeble. "The Chemists' World".

Apr. 2. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Walter J. Murphy, editor, *Industrial and Engineering Chemistry*. "The Chemist as Demobilized from the Armed Forces."

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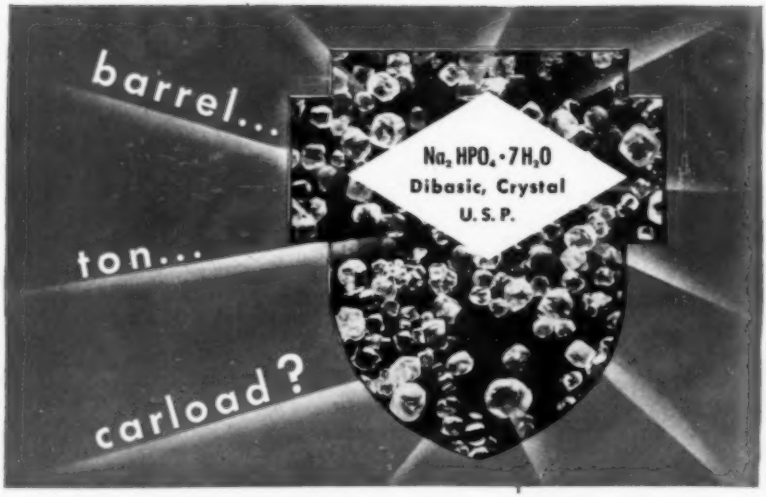

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